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AUTHOR Kushmuk, James
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ABSTRACT

Prescription Learning is a multimedia diagnostic prescriptive program providing individualized instruction coordinated by Prescription Learning Corporation. One high school, nine elementary schools, and four middle schools provided this supplemental reading and mathematics instruction to students covered by the provisions of Chapter 1 of the Education Consolidation and Improvement Act. Prescriptions based on placement test results included objectives and strategies for a total of 1,333 students in kindergarten through grade 8 in the Portland (Oregon) School District. Prescription Learning students made an equivalent rate of growth in project and preproject years in most areas. In 1984-85 the growth rate of project students was greater and statistically significant for reading, and positive, but not significant, in mathematics. It is recommended that Prescription Learning be an option along with other District programs for Chapter 1 and other educationally disadvantaged students. Seven data tables are provided, and Appendix A contains 10 tables of growth rate figures. (SLD)

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ED3003396

1984-85 EVALUATION REPORT

PRESCRIPTION LEARNING

IN THE PORTLAND PUBLIC SCHOOLS

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Research and Evaluation Dept.
Portland Public Schools
Portland, Oregon
Walter E. Hathaway, Director

James Kushmuk

September, 1985

PRESCRIPTION LEARNING IN THE PORTLAND PUBLIC SCHOOLS

1984-85
EVALUATION REPORT

James Kushmuk

September 1985

Portland Public Schools
Evaluation Department

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08/15/85

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The design of this evaluation and much of the actual text was taken from the 1983-84 evaluation of Prescription Learning performed by David Leitner and George Ingebo. The general design was replicated in 1984-85 in order to provide comparability to the previous evaluation.

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INTRODUCTION

Prescription Learning is a multi-media diagnostic prescriptive program that provides individualized instruction through the use of six instructional strategies. As in 1983-84, the 1984-85 program served the same nine elementary schools, four middle schools and one high-school in the Portland School District by providing supplemental reading and math instruction to Chapter I students.

The diagnostic, prescriptive and instructional procedures used in Prescription Learning were specified by program guidelines and were essentially identical for all schools. Prescription Learning students were administered either the SRA Reading Test or the Plasment Test, which was developed by Prescription Learning, at the beginning of the year. The results provided a Starter Prescription that placed students in the appropriate level on a skill continuum and specified which skills in the continuum the student needed to master. A more detailed Individual Prescription, also based on results from the placement tests, was sent from Prescription Learning Corporation to the schools after about two weeks. Students worked on the Starter Prescription until the Individual Prescription arrived.

The Individual Prescription specified no more than four objectives not yet mastered at the student's skill level and the instructional strategies for each objective. Students received a copy of the prescription and were either directed into an instructional strategy or permitted to choose the instructional strategy with which to start. Students usually completed all instructional strategies in each objective before taking a "hands-on" test which measured those objectives the student had yet to master and objectives not yet tested. Hands-on tests could also be given at the discretion of the teacher before the whole prescription was completed. Students are considered to have mastered the objective when they correctly answer two of three questions per objective; this is a default characteristic which can be altered by the teacher. The results from the "hands-on" test updated the student's Individual Prescription. The prescriptions include a total of five continuum levels with 30 skills per continuum.

ORGANIZATION OF PRESCRIPTION LEARNING PROGRAMS

Student Selection

Students were selected for the Prescription Learning program based on Chapter I eligibility requirements (i.e., a P-score of 43 or below and/or teacher judgment). Additional criteria were established at those schools which had the choice of placing students in either Prescription Learning or other Chapter I activities. The additional criteria did not change the prerequisite that all students first met Chapter I eligibility requirements.

Grades Served and Number of Students

The Prescription Learning program served students in Grades K-8. A total of 1,333 students (unduplicated count) received services in Prescription Learning. Table 1 shows a breakdown of students by school, by weeks in the programs, and by subject. Only students who received 16 weeks or more of reading or math instruction were included in the analyses of achievement data.

Staff

Each school's Prescription Learning program was staffed by at least one teacher. Most schools also had one part-time aide assigned to the Prescription Learning laboratory.

Staff Training

Prescription Learning Cooperation opened the 1984-85 school year with a two hour orientation workshop covering the conversion to Apple computers and a presentation on teacher-directed instruction. Additionally, two one-day workshops were provided. The first held in the fall included presentations on LOGO, Freewriter (word processing software), and teacher-directed instruction. The spring workshop included a presentation on teaching styles and working with other teachers, and a presentation on student test-taking skills.

Table 1

Prescription Learning Schools,
Grades, and Number of Students in Each Subject
For Sixteen Weeks or More

School	Grades	Less than 16 Weeks of Instruction	Reading 16 Weeks or More	Math 16 Weeks or More	Total Unduplicated Count
Applegate	1-5	6	58	58	64
Beach	K-5	13	77	76	91
Buckman	1-5	4	59	39	69
Clarendon	2-4	1	44	23	65
George	1-8	49	120	36	172
Humboldt	4-5	3	37	42	51
Kellogg	6-8	27	66	46	107
Meek	K-5	5	70	29	79
Ockley Green	6-8	25	122	118	148
Peninsula*	1-8	19	56	26	81
Sellwood	5-8	20	42	46	82
Vernon	2-5	33	97	0	130
Whitaker	6-8	67	109	5	194
Total		272	972	661	1333

* Data for Peninsula School were not included in the achievement score analysis because it is a year-round school and the number of days between the pre-test and the post-test were not the same as the other schools.

During the year, on-site visits were made every other week by either the Prescription Learning Area Director or Technical Consultant such that a Prescription Learning representative was available once per week at each school.

Equipment

Prescription Learning programs use a variety of instructional media equipment as part of their teaching strategies. In 1984-85, The Commodore and PET microcomputers used in previous years were replaced with Apple IIe computers. Table 2 shows the type and number of instructional equipment used at each school. A total of 52 instructional computers were used. In addition, most schools had one or more each of Dukane readers, Hoffman readers, card readers, and tape players.

Table 2
Equipment in Prescription Learning Schools

School	Management Stations a	Instructional Stations b	Dukane Reader	Tape Player	Hoffman Reader	Card Reader
Applegate	1	4	2	1	2	1
Beach	1	4	1	1	2	1
Buckman	1	3	2	3	2	
Clarendon	1	3	2	2	1	1
George	1	5	3	3		2
Humboldt	1	3	2	2	1	1
Kellogg	1	3	3	3	3	1
Meek	1	3	2	2	2	1
Ockley Green	1	12	3	4		
Peninsula	1	3	3	3	2	1
Sellwood	1	3	3	3		
Vernon	1	3	2	3	2	
Whitaker	1	3	3	2		2
Total	13	52	31	32	17	11

a Management station consists of one Apple IIe computer, monitor, dual drives, and printer.

b Instructional station consists of one Apple IIe computer, color monitor, and single drive.

PRESCRIPTION LEARNING CURRICULUM

New Materials

New materials were introduced in 1984-85 which included additional software and other curriculum materials. Additional software for the Clas II curriculum series included 156 diskettes for math, 25 diskettes for language arts (five levels x five diskettes each), 25 diskettes for study skills (five levels x 5 diskettes each), 72 diskettes in vocabulary (six levels x 12 diskettes each), and 48 diskettes in reading comprehension (six levels x eight diskettes each). For the Orbit series, 24 additional diskettes were provided for math, 60 diskettes for vocabulary (five levels x 12 diskettes each), and 40 diskettes for reading comprehension (five levels x eight diskettes each). Also provided were 92 new PASS diskettes, 41 for math and 51 for grade K-3. Miscellaneous software included Apple Link (five diskettes), Apple Public Domain (two diskettes), and Kinder Concepts (two diskettes).

In addition to new curriculum software, Prescription Learning also added new materials for other learning stations including 20 new film strips, 10 cassettes, and four new kits in spelling, long vowels, short vowels and consonant blends. Finally, schools received a workbook entitled "Spotlight on Computer Literacy" (one teachers guide and 30 workbooks), and LOGO.

Curriculum Match

In the 1983-84 evaluation, some deficiencies were noted in the match between the Precription Learning curriculum and the District's curriculum goals as measured by the Portland Achievement Levels Test (PALT). Prescription Learning began addressing this issue in 1984-85. For the curriculum areas where the match between Prescription Learning and District goals was poor, a list of supplementary software approved by the District was compiled and this list was given to each Prescription Learning Teacher. The plan for 1985-86 is to budget a small amount of money for each school to purchase supplementary software for weak curriculum areas.

EFFECTS OF PRESCRIPTION LEARNING PROGRAM

The evaluation conducted to investigate the effects of the Prescription Learning program compared the achievement gains of Chapter I students who were in the Prescription Learning program with two different populations: (1) District Chapter I students; and (2) all District students in those grades where comparisons were possible. Next, the achievement growth of Prescription Learning students in 1984-85 was compared with their achievement growth in 1983-84. Student achievement was measured by the Comprehensive Test of Basic Skills, Form S (Grade 2), and the Portland Achievement Levels Tests (Grades 3 to 8).

The District Chapter I program administers the Comprehensive Test of Basic Skills to Grade 2 students for evaluation purposes because the Portland Achievement Levels Tests are not administered below Grade 3. Primary B was administered in the fall and Primary C was adminstered in the spring.

Results for grade two and grade three-eight are presented in separate sections. The grades three-eight results include an analysis of achievement gains by the number of years 1984-85 students were enrolled in The Prescription Learning Program.

Grade 2

Table 3 shows the pre and post test means and gains for Prescription Learning and District Chapter I students in Grade 2. Data were collected from five Prescription Learning schools and 36 District Chapter I schools with students in Grade 2. Two schools with second grade tests scores (Humboldt and Buckman) could not be included because a clear distinction between students in Prescription Learning and H.O.S.T.S. in these two schools which had both programs could not be made. All scores included in this analysis are based on matched fall/spring scores, i.e., students with both fall and spring scores.

Table 3

Grade 2 Fall 1984 and Spring 1985
Expanded Scale Score and Percentiles for
Prescription Learning and District/Chapter I Students

	N	Fall	Spring	Gain
Expanded Scaled Score				
Prescription Learning	77	260	300	40
District/Chapter I	406	259	298	39
Percentile Score				
Prescription Learning	77	23.9	33.7	9.8
District/Chapter I	406	23.0	33.0	10.0

Matched data were available for 77 identified second grade Prescription Learning students. Results are expressed in terms of mean expanded scale scores and corresponding percentiles.

The results indicate that Grade 2 Prescription Learning students made gains equivalent to District Chapter I students, as expressed in expanded scaled scores as well as percentile scores.

Grades 3 to 8

Achievement growth for Grades 3 to 8 was measured by the difference in scores obtained in the fall and spring administrations of the PALT in reading and math. The expectation was that first year students would make larger gains in 1984-85, their first Prescription Learning or project year, than in 1983-84, their non-Prescription Learning or pre-project year. Similar analyses for second and third year Prescription Learning students were performed; however, no specific predictions were made about differences between 1983-84 and 1984-85 gains. For the multi-year group, 1983-84 did not represent a pre-project year. Data were included for students from 12 Prescription Learning schools who were in the program a minimum of 16 weeks. This represents half of the time between the beginning of school to the post-test date.

The results are reported in standard deviation scores, GROW and RATE scores for clear and intact groups for each year 1983-84 and 1984-85. These terms are defined as follows:

1. Clear and intact groups include students who had fall and spring test scores for a given year (clear) and were enrolled at the same school in the fall and spring (intact).

2. Standard deviations are group statistics showing the deviation of a group RIT mean from the means of all school RIT means in the District. RIT scores are equal interval, curriculum based scores obtained from the PALT.

3. GROW is an index that represents the amount of achievement growth, based on clear and intact groups, in a given year. It shows the deviation of groups' fall to spring gain from the mean of all school mean gains for each grade level group in the District.

4. RATE is an index that represents the change in the amount of achievement growth in 1984-85 as compared with 1983-84. It also is based on a comparison of the difference in means for a group with the differences for all groups at that grade level in the District. It shows the deviation of year to year groups' gain from the mean of all school mean gains for each grade level group in the District.

   The criteria for interpreting the GROW and RATE values in terms of statistical significance are the same, and shown in Tables 4.

Table 4

Interpretation of GROW Values and RATE Values

GROW or RATE Value		Interpretation
Less than District Average	-2.0 and below	Negative, significant
	-2.0 to -1.7	Negative, approaching significance
	-1.6 to -0.7	Negative, nonsignificant
	-0.7 to 0.7	Average District growth
Greater than District Average	0.7 to 1.6	Positive, nonsignificant
	1.7 to 2.0	Positive, approaching significance
	2.0 and above	Positive, significant

The results presented in Tables 5 and 6, show reading and math data, respectively. The reading results are for students who received reading instruction and math results are for students who received math instruction; however, most students received both reading and math instruction. Tables 5 and 6 show group means which are clear and intact for each of the school years 1983-84 and 1984-85. In addition, results for one- and two-year Chapter I students are presented for comparison again using clear and intact populations. (See Appendix A for data presented by grade.)

The Grades 3 to 8 results are presented in three sections: deviation means, GROW, and RATE. The results are as follows:

Fall and Spring Deviation Means. Overall, the deviation means of all groups in Tables 5 and 6 show Prescription Learning and Chapter I students tend to be the lower performing students in their 1983-84 and 1984-85 gains. This is the expectation given the student selection criteria for the Chapter I program.

Table 5

Reading Standard Deviation, GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and

	Fall 1983	Spring 1983	Fall 1984	Spring 1984	GROW 1983-84	GROW 1984-85	RATE 1983-85
All Grades							
Prescription Learning							
One-Year (n = 223)	-2.67	-3.16	-2.82	-2.51	-1.69	1.31	2.35
Two-Year (n = 128)	-3.40	-3.47	-2.97	-2.65	-0.32	1.59	1.50
Three-Year (n = 54)	-3.45	-3.01	-2.98	-2.57	1.63	2.31	0.58
Total (n = 405)	-3.01	-3.23	-2.89	-2.57	-0.82	1.53	1.84
Chapter I							
One-Year (n = 247)	-2.47	-2.80	-2.64	-2.24	-1.05	1.76	2.19
Two-Year (n = 250)	-2.95	-2.80	-2.41	-2.31	0.45	0.28	-0.14
Total (n = 497)	-2.71	-2.80	-2.52	-2.28	-0.29	1.02	1.02

Table 6

Math Standard Deviation, GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students; and
One-Year and Two-Year Chapter I Students.

	Fall 1983	Spring 1983	Fall 1984	Spring 1984	GROW 1983-84	GROW 1984-85	RATE 1983-85
All Grades							
Prescription Learning							
One-Year (n = 211)	-3.24	-3.30	-3.00	-2.82	-0.28	0.66	0.85
Two-Year (n = 106)	-3.43	-3.29	-3.02	-2.78	0.17	1.09	0.96
Three-Year (n = 51)	-3.39	-2.97	-2.88	-2.74	0.95	0.59	-0.19
Total (n = 368)	-3.32	-3.25	-2.99	-2.80	0.02	0.77	0.74
Chapter I							
One-Year (n = 277)	-2.47	-2.81	-2.57	-2.29	-1.06	0.76	1.49
Two-Year (n = 262)	-3.29	-2.74	-2.56	-2.29	1.22	1.04	-0.13
Total (n = 539)	-2.87	-2.78	-2.57	-2.29	0.05	0.89	0.71

GROW

As mentioned previously, GROW represents the standardized amount of growth in a given year. The 1984-85 results of students who were in Prescription Learning for one year show growth in reading (GROW = 1.31) greater than the District average which is positive but statistically nonsignificant, and growth in math (GROW = 0.66) equivalent to the District average. Students enrolled for two years had growth in both reading (GROW = 1.59) and math (GROW = 1.09) greater than the District average, although these differences were not statistically significant. Results for students enrolled for three years were mixed showing growth of greater than the District average in reading to a statistically significant degree (GROW = 2.31) but growth in math (GROW = 0.59) equal to the District average. When the data from one-, two-, and three-year Prescription Learning students are combined, the results show growth in both reading (GROW = 1.53) and math (GROW = 0.77) which is greater than the District average, and positive but statistically nonsignificant on both cases.

One-year Chapter I students show growth in reading (GROW = 1.76) greater than the District average which approaches statistical significance, and show growth in math (GROW = 0.76) which is greater than the District average but statistically non-significant. The Chapter I gains in both reading and math are numerically larger than those for one-year Prescription Learning students. Students enrolled for two years of Chapter I Services show growth in reading (GROW = 0.28) equivalent to the District average and growth in math (GROW = 1.04) greater than the District average, but not to a statistically significant degree. The gains are numerically smaller than the gains of the two-year Prescription Learning group for reading, but nearly equivalent for math. When the data from one- and two-year Chapter I students are combined, the results show that students made growth in reading (GROW = 1.02) and in math (GROW = 0.89) greater than the District average, but to a statistically non-significant level in both cases.

RATE

As previously mentioned, RATE represents the change in the rate of achievement growth for one year to the next, or for the pre-project to the project year in the case of first-year program students. One-year Prescription Learning students show larger gains in rate of growth in reading (RATE = 2.35) in the project than pre-project year which was statistically significant, and larger gains in math (RATE = 0.85) in the project than pre-project year, but to a statistically non-significant degree. Students enrolled for two years also show larger gains in rate of growth in reading (RATE = 1.50) and math (RATE = 0.96) in 1984-85 than in 1983-84, which were both statistically non-significant. Three-year students show equivalent rate of growth to the District in reading (RATE = 0.58) over the last two years and a negative growth rate compared to the District in math (RATE = - 0.19) in 1984-85 than in 1983-84. When the data from one-, two-, and three-year students are combined, the results show that students had a larger rate of growth in reading (RATE = 1.84) which approached statistical significance, and a positive growth rate in math (RATE = 0.74) that was statistically non-significant.

One-year Chapter I students show larger gains in reading (RATE = 2.19) in the project than pre-project year, which was statistically significant. In math (RATE = 1.49), larger gains were also found, although statistically non-signficant. In comparison to the gains of one-year Prescription Learning students, the one-year Chapter I student gains are nearly equivalent in reading and larger in math. In comparison to the gains for two-year Prescription Learning students, the two-year Chapter I student gains are numerically smaller in both reading and math. When the data from one- and two-year students are combined, Chapter I students show a lower rate of growth in reading (RATE = 1.02) than Prescription Learning students (RATE = 1.84), and a rate of growth in math (RATE = 0.71) nearly equal to Prescription Learning students (RATE = 0.74).

Program Results, 1981-82 to 1984-85

Table 7 provides a summary of the effectiveness of Prescription Learning over the last four years, 1981-82 to 1984-85. The results show that Prescription Learning students made an equivalent rate of growth in the project and pre-project years in both 1981-82 and 1982-83, except in math during 1981-82 where students made greater growth in their project than pre-project year, but not to a significant degree. In 1983-84, students made a greater growth in the project than pre-project year, which approached significance in reading and was significant in math. Finally in 1984-85, students show a growth rate which is positive and statistically significant in reading, and positive but non-significant in math.

Table 7

Overall Effectiveness of Prescription Learning for
First-Year Students, 1981-82 to 1984-85, As Measured by RATE

	N	Less Growth in Project than Pre-Project Year (-1.6 to -0.7) Negative, Nonsignificant	Equal Growth for Two Years (-0.7 to 0.7)	Greater Growth in Project than Pre-Project Year (0.7 to 1.6) Positive, Nonsignificant	(1.7 to 2.0) Positive, Approaching Significance	(2.0 and above) Positive, Significant
Reading						
1981-82	434			X		
1982-83	262			X		
1983-84	77				X	
1984-85	223					X
Math						
1981-82	446				X	
1982-83	140			X		
1983-84	82					X
1984-85	211			X		

FINDINGS

The findings are based on student achievement data from 12 schools where Prescription Learning was used in conjunction with the Chapter I program. Only students having more than 15 weeks in the program were included in the analyses.

1. Overall, the Fall-Spring achievement gains of first-year Prescription Learning students were greater during their project year (1984-85) than their pre-project year (1983-84), approaching statistical significance in reading but non-significant in math. However, there were some differences across schools and grades indicating that the effect is not uniform.

2. Both Prescription Learning and other Chapter I treatments assisted students in making achievement gains. Data comparing Prescription Learning students and all Chapter I students in grades 3-8 revealed that Prescription Learning achieved gains which were larger in reading, and equivalent in math.

3. When comparing the performance of students who participated in Prescription Learning for only one year in 1984-85 with one-year students from previous year's evaluations, the measure RATE shows that students in 1984-85 showed the highest level of achievement in their project year over their pre-project year in reading. For math, the 1984-85 rate of growth for first year students was positive but not as high as the rate of growth for 1983-84 students.

4. Prescription Learning students who participated in the program for two full years (1983-84 and 1984-85) continued to grow in achievement performance but at a rate lower than the one-year students of 1984-85, for reading, and slightly higher than the one-year students of 1984-85 for math as measured by RATE.

5. Three-year Prescription Learning students (1982-83 through 1984-85) demonstrated a rate of growth (as measured by RATE) equivalent to that for the District in both reading and math, although the rate of growth in reading was larger than that of math.

6. Data comparing the gains of Chapter I second-grade students in Prescription Learning with gains of other Chapter I second graders showed equivalent performances.

RECOMMENDATIONS

1. Prescription Learning should be considered by schools as an option along with other District programs, particularly for Chapter I and other educationally disadvantaged students. Relative cost, curriculum match, ease of operation, student interest, etc., should be taken into account.

2. The curriculum covered by the Prescription Learning materials should continue to be supplemented so it will closely matched with the District curriculum goals, especially in mathematics.

APPENDIX A

Tables Presenting Standard
Deviation Means, GROW, and RATE of Growth for
Prescription Learning and Chapter I Participants by Grade

Table A.1

Reading Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 4							
Prescription Learning							
One-Year (n = 32)	-2.39	-3.03	-3.13	-2.38	-1.47	1.96	2.52
Two-Year (n = 33)	-3.97	-3.82	-3.07	-2.79	0.35	0.74	0.49
Three-Year	--	--	--	--	--	--	--
Total (n = 65)	-3.22	-3.44	-3.10	-2.59	-0.52	1.34	1.49
Chapter I							
One-Year (n = 48)	-1.79	-2.75	-2.82	-2.15	-1.80	1.77	2.61
Two-Year (n = 78)	-3.22	-3.02	-2.54	-2.34	0.47	0.52	0.02
Total (n = 126)	-2.76	-2.92	-2.65	-2.27	-0.37	1.00	1.10

Table A.1 (continued)

Reading Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 5							
Prescription Learning							
One-Year (n = 27)	-2.99	-3.31	-2.97	-2.45	-0.97	1.85	2.01
Two-Year (n = 33)	-3.60	-3.50	-3.00	-2.77	0.32	0.81	0.35
Three-Year (n = 11)	-3.32	-2.90	-2.61	-2.63	1.27	-0.06	-0.95
Total (n = 71)	-3.33	-3.33	-2.93	-2.63	-0.02	1.07	0.78
Chapter I							
One-Year (n = 53)	-2.23	-2.52	-2.56	-2.42	-0.87	0.50	0.97
Two-Year (n = 53)	-2.98	-2.99	-2.46	-2.54	-0.05	-0.27	-0.15
Total (n = 106)	-2.60	-2.75	-2.51	-2.48	-0.47	0.12	0.41

Table A.1 (continued)

Reading Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 6							
Prescription Learning							
One-Year (n = 54)	-2.59	-2.88	-3.14	-2.94	-0.95	0.66	1.27
Two-Year (n = 14)	-2.91	-2.78	-2.80	-2.77	0.40	0.11	-0.24
Three-Year (n = 14)	-3.74	-3.10	-3.20	-2.46	2.10	2.40	0.24
Total (n = 82)	-2.84	-2.90	-3.09	-2.83	-0.19	0.86	0.84
Chapter I							
One-Year (n = 61)	-2.80	-2.80	-3.06	-2.63	0.01	1.38	1.06
Two-Year (n = 35)	-2.82	-2.54	-2.64	-2.33	0.94	0.99	0.04
Total (n = 96)	-2.81	-2.70	-2.90	-2.52	0.35	1.24	0.69

Table A.1 (continued)

Reading Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 7							
Prescription Learning							
One-Year (n = 61)	-2.83	-3.41	-2.64	-2.57	-2.19	0.50	2.10
Two-Year (n = 28)	-2.66	-3.30	-2.86	-2.47	-2.44	2.71	4.07
Three-Year (n = 9)	-3.19	-3.36	-3.15	-2.95	-0.66	1.35	0.69
Total (n = 98)	-2.81	-3.37	-2.75	-2.57	-2.14	1.21	2.53
Chapter I							
One-Year (n = 39)	-2.86	-3.30	-2.42	-2.13	-1.68	1.99	2.98
Two-Year (n = 44)	-2.68	-2.46	-2.34	-2.21	0.81	0.86	0.05
Total (n = 83)	-2.76	-2.86	-2.38	-2.18	-0.38	1.39	1.42

Table A.1 (continued)

Reading Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 8							
Prescription Learning							
One-Year (n = 49)	-2.57	-3.13	-2.40	-2.10	-2.41	2.31	3.91
Two-Year (n = 18)	-3.49	-3.51	-2.96	-2.48	-0.08	3.66	3.05
Three-Year (n = 20)	-3.42	-2.87	-2.97	-2.45	-2.36	3.97	1.60
Total (n = 87)	-2.96	-3.15	-2.65	-2.26	-0.78	2.97	3.20
Chapter I							
One-Year (n = 46)	-2.47	-2.78	-2.16	-1.70	-1.34	3.53	3.96
Two-Year (n = 39)	-2.82	-2.65	-2.00	-2.10	0.72	-0.79	-0.87
Total (n = 85)	-2.63	-2.72	-2.09	-1.89	-0.41	1.55	1.74

Table A.2

Math Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 4							
Prescription Learning							
One-Year (n = 30)	-2.10	-3.28	-2.64	-2.74	-2.19	-1.47	0.57
Two-Year (n = 29)	-3.24	-3.03	-2.54	-2.72	0.38	0.09	-0.23
Three-Year (n = 1)	-3.34	-2.18	-3.52	-2.03	2.15	2.30	0.12
Total (n = 60)	-2.67	-3.14	-2.60	-2.59	-0.88	-0.65	0.17
Chapter I							
One-Year (n = 53)	-1.92	-3.00	-2.75	-2.00	-2.00	1.92	3.06
Two-Year (n = 68)	-2.99	-2.54	-2.29	-2.16	0.84	0.36	-0.37
Total (n = 121)	-2.53	-2.74	-2.49	-2.09	-0.39	1.04	1.13

Table A.2 (continued)

Math Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 5							
Prescription Learning							
One-Year (n = 25)	-3.82	-3.05	-3.76	-2.74	1.88	2.39	0.45
Two-Year (n = 23)	-3.49	-3.19	-3.00	-2.72	0.75	0.66	-0.07
Three-Year (n = 12)	-2.50	-2.08	-2.52	-2.03	1.03	1.56	0.11
Total (n = 60)	-3.43	-2.91	-3.22	-2.59	1.28	1.48	0.18
Chapter I							
One-Year (n = 58)	-2.26	-2.47	-2.65	-2.17	-0.51	1.13	1.44
Two-Year (n = 53)	-3.21	-2.73	-2.65	-2.35	1.17	0.71	-0.41
Total (n = 111)	-2.72	-2.59	-2.65	-2.25	0.30	0.43	0.56

Table A.2 (continued)

Math Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 6							
Prescription Learning							
One-Year (n = 44)	-3.38	-2.91	-3.22	-2.81	1.18	1.29	1.05
Two-Year (n = 13)	-4.05	-3.09	-3.16	-3.49	1.19	-1.06	-1.81
Three-Year (n = 10)	-4.70	-3.59	-3.16	-3.76	1.50	-1.90	-2.73
Total (n = 67)	-3.72	-3.05	-3.20	-3.09	0.58	0.36	-0.07
Chapter I							
One-Year (n = 71)	-2.65	-2.61	-2.61	-2.58	-0.72	0.09	0.54
Two-Year (n = 47)	-3.80	-2.68	-3.04	-2.62	1.50	1.34	-0.13
Total (n = 118)	-3.11	-2.64	-2.78	-2.60	0.17	0.59	0.27

Table A.2 (continued)

Math Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 7							
Prescription Learning							
One-Year (n = 62)	-3.30	-3.56	-2.85	-2.68	-0.80	0.93	1.61
Two-Year (n = 26)	-3.05	-3.66	-3.14	-2.67	-1.94	2.56	4.52
Three-Year (n = 10)	-3.04	-3.03	-3.01	-2.58	0.04	2.37	2.32
Total (n = 98)	-3.21	-3.54	-2.95	-2.67	-1.03	1.51	2.46
Chapter I							
One-Year (n = 49)	-2.75	-3.19	-2.33	-2.44	-1.38	-0.57	1.03
Two-Year (n = 49)	-3.43	-2.93	-2.41	-2.04	1.62	2.06	0.57
Total (n = 98)	-3.09	-3.06	-2.37	-2.24	0.12	0.74	0.80

Table A.2 (continued)

Math Standard Deviation GROW and RATE Means
for One-Year, Two-Year and Three-Year,
Prescription Learning Students;
One-Year and Two-Year Chapter I Students; and
Two-Year Chapter I/Prescription Learning Students by Grade

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	GROW 1983-84	GROW 1984-85	RATE 1983-85
Grade 8							
Prescription Learning							
One-Year (n = 50)	-3.45	-3.44	-2.84	-2.80	0.05	0.17	0.96
Two-Year (n = 15)	-3.84	-3.48	-3.66	-3.00	1.64	3.03	1.09
Three-Year (n = 18)	-3.44	-3.23	-2.05	-2.74	0.976	0.51	-0.39
Total (n = 83)	-3.52	-3.40	-2.90	-3.82	0.54	0.76	0.17
Chapter I							
One-Year (n = 46)	-2.76	-2.95	-2.46	-2.16	-0.85	1.38	1.74
Two-Year (n = 44)	-3.15	-2.90	-2.59	-2.34	1.13	1.14	-0.11
Total (n = 90)	-2.95	-2.93	-2.52	-2.25	0.10	1.26	0.83